

COOK AND CHILL CASING

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BACKGROUND OF THE INVENTION

Field of the Invention

[0001] The present invention relates to a plastic bag for use in the food service industry, and, more particularly, to an improved Cook and chill casing.

Related Art

[0002] The Cook and chill method of food preparation has revolutionized the way commercial and institutional facilities approach food production. It is a safe and economic alternative to the traditional cook-to-serve method, cost effectively preserving and delivering the taste and quality of freshly prepared food. Cook and chill is a more efficient way of solving the dilemma of matching food production to demand. It enables the creation of a food bank of a variety of food products that may be reheated and used as needed.

[0003] Cook and chill is the practice of cooking large quantities of food to a minimum temperature of approximately 170°F and then rapidly cooling this food to minimize the time that the food spends in the danger zone. The danger zone is from about 140°F to about 40°F and represents the temperature range in which bacteria grows. Rapid chilling is typically done in an ice bath or using a blast chiller. Rapid chilling preserves food flavor and texture and extends shelf life. Once chilled, the product can be safely refrigerated for periods as long as about 45 days.

[0004] One known packaging technique used with the cook and chill method is the cook and chill casing, such as that available from M & Q Plastic Products, Inc. of North Wales, Pennsylvania, USA. The M & Q cook and chill casing is essentially a plastic bag formed from a tubular material open at one end and sealed at the other end. During use, an operator will fill the

casing to a desired level and then seal the open end using a tie or clip. The casing is then placed into a chilling apparatus to cool the food product through the danger zone.

[0005] Such casings provide great advantages over other food storage methods. However, there remain several shortcomings of the conventional cook and chill casing. One difficulty that arises when handling filled casings prior to cooling is that the filled casing is hot and difficult to handle without gloves. Operators therefore find themselves repeatedly putting-on and taking-off gloves during the fill and handling process. Another shortcoming is exposed when a filled casing is dropped. Because of the relatively large quantity of food placed therein, a casing will occasionally burst when dropped onto a hard surface. Furthermore, even when a casing doesn't burst, the impact can stress the casing, causing pinholes that may result in leakage, contamination and/or spoilage.

[0006] One known casing has a sealed end that is sealed with a straight-across heat seal. Another known casing has a sealed end that is sealed using a clip (e.g., a metal band). The casing with the heat-sealed bottom tends to be more susceptible to bursting than the clip-sealed casing. However, the heat-sealed casing tends to be easier to package for distribution and sale. For example, with one commercially available casing, approximately 500 heat-sealed casings can be packaged to a box, whereas only about 100 of the same size clip-sealed casings can be packaged in the same size box.

[0007] What is needed is an improved cook and chill casing that overcomes the limitations of known casings.

BRIEF SUMMARY OF THE INVENTION

[0008] The present invention is a cook and chill casing or bag formed from a plastic, tubular material. The casing has a food-receiving interior that is open at a first end and sealed at a second end. The sealed end is tapered or angled. The tapering reduces pressure that is placed on the bottom end of the casing to

increase burst strength. In addition, the tapered seal separates two distal corners of the tubular material from the interior of the casing producing "dog ears." The dog ears provide convenient handles for handling the casings especially when the contents is hot. Yet another advantage of the tapered seal is that the unfilled casings are compact, allowing greater packaging density.

[0009] In one embodiment, the plastic tubular material is a three-layer co-extruded plastic film having one layer of nylon, one layer of polyethylene and a tie material to join the layers of nylon and polyethylene. In another embodiment, the plastic tubular material is Monolyn MQ21 available from M & Q Plastic Products, Inc. In other embodiments, the plastic, tubular material may be nylon, polyethylene, polypropylene, polyester, and/or various multi-layer combinations of one or more of these materials. In these embodiments, the tubular material has a thickness in the range of about 2mls to about 5 mls.

[0010] These and other features and advantages of the invention are described in further detail below.

BRIEF DESCRIPTION OF THE DRAWINGS/FIGURES

[0011] The drawings illustrate the present invention and, together with the description, further serve to explain the principles of the invention and to enable a person skilled in the relevant to make and use the invention. In the accompanying drawings, like reference numbers indicate the same or substantially the same elements. Furthermore, the left most digit of the reference numbers indicates the number of the drawing in which the reference number is first used. The drawings include:

[0012] FIG. 1 shows a conventional cook and chill casing having a straight-sealed bottom and an open top;

[0013] FIG. 2 shows a conventional cook and chill casing that has been filled with food and sealed with a clip;

[0014] FIG. 3 shows the cook and chill casing of the invention having a first open end and a tapered, sealed, second end with dog ears;

[0015] FIG. 4 shows the cook and chill casing of the invention filled with food and sealed with a clip; and

[0016] FIG. 5 is a perspective view illustrating a cook and chill casing of the invention that has been filled with food and sealed with a clip.

DETAILED DESCRIPTION OF THE INVENTION

[0017] FIG. 1 illustrates a conventional Cook and chill casing 102. Casing 102 is formed from a sheet of plastic material and has the shape of a tube with a sealed end 108 and an open end 104. Open end 104 allows access to an interior portion 106 of Casing 102. Typically, sealed end 108 is formed by heat sealing the plastic material at one end with a straight seal as illustrated. This forms a square or flat bottom on casing 102.

[0018] FIG. 2 shows casing 102 filled with food 201. Note that open end 104 has been sealed with a clip 202 to prevent leakage of food 201 and to prevent oxygen and bacteria from coming in contact with food 201. In use, an operator will typically fill casing 102 with food that has been heated to a temperature above about 180°. Once the desired amount of food has been placed in casing 102, a clip 202 is used to close open end 104 while minimizing the amount of air trapped in casing 102.

[0019] As previously explained, casing 102 is susceptible to bursting when dropped from a working height onto a hard surface such as a concrete floor. Bursting often occurs at closed end 108. Furthermore, even when bursting does not occur, the stresses of a fall can cause pinholes in casing 102 at sealed end 108. The bursting and/or pin holes result from hydrostatic pressure exerted in the center of the bag when the flat bottom contacts the hard floor. As described below, the invention more evenly distributes these forces across the entire bag instead of being focused on the flat bottom.

[0020] FIG. 3 illustrates the cook and chill casing or bag 302 of the invention. Casing 302 is formed from a plastic sheet material that has been preformed into the shaped of a tube. Casing 302 has an open end 304 and a closed end

305, forming an interior portion within casing 302. Sealed end 305 includes a seal 308. Note that seal 308 is a tapered or angled seal having sealed portions 308A, 308B and 308C. Sealed portion 308C is a straight seal, i.e., seal 308C is substantially perpendicular to the length of casing 302. In contrast, sealed portions 308A and 308B are angled with respect to sealed portion 308C. In one embodiment, sealed portions 308A and 308B are angled at about 45° with respect to a longitudinal axis 301 of casing 302. In other embodiments, the angle may be in the range of about 30° to about 60° with respect to longitudinal axis 301. In other embodiments, sealed portions 308A and 308B may be angled and/or positioned such that they meet at a point, effectively eliminating sealed portion 308C.

[0021] Casing 302 is formed from a plastic sheet of material that has been preformed into a length of tubing. The tubing is then cut to a desired length and sealed at one end to form casing 302. Suitable plastic materials include nylon, polyethylene, polypropylene and polyester. These materials may be single layer or may be combined in multiple layers of the same or different materials. For example, in one embodiment, the material is a three-layer co-extruded plastic film, having one layer of nylon, one layer of polyethylene and a tie material to join the layers of nylon and polyethylene. Such a material is commercially available from Buergofol GmbH, Siegenburg, Germany, under part no. XB33A003. This is a 4.0 mils thick, 3-layer tubular COEXFILM with a structure of nylon/tie/polyethylene. Another suitable material is Monolyn MQ21 in a thickness of 3.0 mils, available from M & Q Plastic Products, Inc. Northwales, Pennsylvania, USA. These materials provide suitable characteristics for use in a heat and chill casing. These characteristics include, for example, being able to withstand temperatures in the range of -10 to 212°F, having limited permeability to gases and vapors, adequate tensile strength and tear strength, and are safe for use with foods.

[0022] Note that sealed portions 308 of casing 302 isolate distal corners 310A and 310B of casing 302 from interior portion 306 to form "dog ears." The inventors have discovered that these dog-eared portions 310 are useful as

handles, especially when handling casings that contain hot food. FIGS. 4 and 5 show casing 302 filled with food 201. Note that sealed portions 308A and 308B prevent the food from entering dog ear portions 310.

[0023] In an embodiment, sealed portions 308 are formed by heat sealing the material. It will be apparent, however, to a person skilled in the art that other sealing mechanisms may be used including, for example, an adhesive.

[0024] As illustrated in FIGS. 4 and 5, a clip 202 is used to seal open end 304. In an embodiment, clip 202 is a cross clip or a butt clip formed from an aluminum wire. Suitable clips are commercially available from, for example, Tipper Tie Inc., Apex, North Carolina, USA. However, it will be apparent to a person skilled in the art that other clips, bands, heat seals, adhesives or sealing devices may be used.

[0025] While various embodiments of the present invention have been described above, it should be understood that they have been presented by way of example, and not limitation. It will be apparent to persons skilled in the relevant art that various changes in detail can be made therein without departing from the spirit and scope of the invention. Thus the present invention should not be limited by any of the above-described exemplary embodiments, but should be defined only in accordance with the following claims and their equivalents.